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ANTIFUNGAL AGENT USING MICROORGANISM AND METHOD FOR PRODUCING THE SAME

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Abstract of JP2003146897 (A)

PROBLEM TO BE SOLVED: To provide an antifungal agent (medicine for athlete's foot) useful for remedy of mycosis like an athlete's foot and to provide a method of production for the same. SOLUTION: This method adds bacteria belonging to *Corynebacterium* to a juicy liquid obtained by treating a flesh of fruit having fructose or vegetable with a crushing means such as a mixer, etc., and then fermenting them at 20-60 deg.C for more than 200 hr, preferably two weeks to one month.

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CLAIMS

[Claim(s)]

[Claim 1]An antifungal which consists of fermented mash produced by cultivating bacteria belonging to the *Corynebacterium* (*Corynebacterium*) group in solution containing fructose and sucrose.

[Claim 2]A manufacturing method of an antifungal which adds sucrose in juice produced by grinding pulp or vegetables in a grinding means, feeds bacteria belonging to the *Corynebacterium* (*Corynebacterium*) group into the liquid concerned, and is produced by holding for 200 hours or more at temperature of 20 ** – 60 **.

[Translation done.]

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DETAILED DESCRIPTION

[Detailed Description of the Invention]**[0001]**

[Field of the Invention]This invention relates to the external use dermatomycosis remedy which treats what is called athlete's foot, such as athlete's foot caused by Trichophyton between the skin or a nail, and bullous inflammation caused in the skin of hand and foot.

[0002]

[Description of the Prior Art]If Trichophyton is infected between the skin of a leg, or a nail, the inflammation called what is called athlete's foot will occur. A large number are conventionally provided as a remedy of this athlete's foot. however -- even if the conventional external use remedy carries out spreading use every day at the skin affected part -- Trichophyton -- a horny layer, since it is deeply alike and until existence is recognized, It was dramatically difficult to have to apply until a horny layer is reproduced thoroughly, to require for two to three months and a prolonged therapy, to require for about one year, when carrying out a spreading therapy until it will grow and change to a new nail, if infected especially between the nails of a toe, and to have made it recover completely.

[0003]

[Problem to be solved by the invention]This invention aims at offer of a useful antifungal and a manufacturing method for the same for the therapy of a mycosis like the above-mentioned athlete's foot.

[0004]

[Means for solving problem]this invention person used to find out that the fermented mash produced by cultivating predetermined bacteria can be excellent in the perviousness to the horny layer of the skin, and can make mycoses, such as athlete's foot, recover completely for a short period of time. When it explains more concretely, the pulp or vegetables of fruits which have fructose for the bacteria (KORINE bacillus) belonging to the Corynebacterium (Corynebacterium) group A juicer, Supplying to the liquid made into juice state in the grinding means of a mixer etc., and adding sucrose (sugar) of the specified quantity, it holds for two week – one month preferably, and is made to ferment at the temperature of 20 ** – 60 ** for 200 hours or more.

[0005]Although liquid, such as fruit juice, has become muddy with fine pulp powder etc. at the beginning, along with **, transparency of fermentation increases it here. Thus, when applied to the athlete's foot affected part by considering the obtained fermented mash as external use, in the case of the skin of a leg, it recovered completely in two to three days, and, in the case of ringworm of the nail, recovered completely in about one week – one month.

[0006]

[Mode for carrying out the invention]The desirable embodiment of this invention is described concretely below. Independent or about 30–40 kg of things which were mixed, were used and were made into juice state by the mixer are built, and vegetables containing many fruits or fructose, such as an apple, a grape, and a watermelon, such as a ginseng radix and a burdock, are put into containers, such as a jar. In this, about 15 kg of sugar is thrown in and stirred. Although about 30–40 kg of sugar could be thrown in at once, the additional injection was carried out

every day so that it might mention later this time. Next, about 0.5 kg of undiluted solutions by which KORINE bacillus culture was carried out are thrown in, and are stirred. The quantity of a KORINE bacillus will not be limited above, especially if it can contribute to fermentation.

Although what is necessary is just to have saved the above-mentioned container at the temperature of 20 ** - 60 **, in consideration of economical efficiency, this container was put on the sunny place. About 15-25 kg of 3-5-kg sum total addition injection was carried out, and sugar was stirred every day. although liquid had become muddy the first day -- about the 1st [about] week -- from -- the transparency of liquid increases -- about two weeks -- colored [of an amber color] -- it became transparent liquid. Although the above-mentioned example showed the example of manufacture which used the jar of a lot of [and] comparatively large pottery for the purpose of long-term-storage use, if it is the conditions which can cultivate a KORINE bacillus and can ferment, it will not be limited above.

[0007]When a little liquid produced by performing it above was taken out, it applied to the athlete's foot affected part of the leg of the patient who worried about athlete's foot for years directly once on the 1st and progress was observed, the itching and a pain were lost within the day, after applying for three days, it was neglected, but there was no relapse of athlete's foot. In the case of this patient, since a small bulla was made on the skin of the leg, a bulla was broken with the disinfection needle, and the above-mentioned liquid was applied to it. When directly applied like the affected part of the patient with tinea pedis generated between the digit pedis and a finger, it recovered completely too in two to three days.

[0008]The above-mentioned liquid concerning this invention was infiltrated into absorbent cotton in small quantities, and it hit against the toe of the patient who worried about ringworm of the nail for years, and when the finger cot made of rubber was inserted in and placed, ringworm of the nail was cured completely in about one week. In the case of the patient from whom the whole thumb of the leg is ringworm of the nail, when the above-mentioned absorbent cotton was exchanged and treated day by day [2 - 3], it recovered completely in about one month.

[0009]

[Effect of the Invention]In this invention, Trichophyton, such as athlete's foot, can be sterilized only by applying to the skin affected part the liquid which cultivated the bacteria which belong to the Corynebacterium (Corynebacterium) group with the fruit juice etc. which were obtained from pulp etc. as it is. The antifungal which can be manufactured that it is very effective in a dermatomycosis therapy and easily by this was obtained.

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(54)【発明の名称】微生物を利用した抗真菌剤(水虫薬)及びその製造方法

(57)【要約】

【課題】水虫のような真菌症の治療に有用な抗真菌剤及びその製造方法の提供を目的とする。

【解決手段】コリネバクテリウム(Corynebacterium)属に属する細菌(コリネ菌)を果糖を有する果実の果肉又は野菜をミキサー等の粉碎手段にて汁状にした液に投入して所定量の蔗糖(砂糖)を添加しつつ、温度20°C~60°Cにて200時間以上、好ましくは2週間~1ヶ月間保持し発酵させる。

【特許請求の範囲】

【請求項1】コリネバクテリウム (*Corynebacterium*) 属に属する細菌を果糖と蔗糖とを含有する水溶液にて培養して得られた発酵液からなる抗真菌剤。

【請求項2】果肉又は野菜を粉碎手段にて粉碎して得られた汁に蔗糖を添加し、当該液にコリネバクテリウム (*Corynebacterium*) 属に属する細菌を投入し、温度20°C~60°Cにて200時間以上保持して得られる抗真菌剤の製造方法。

【発明の詳細な説明】

【0001】

【発明の属する技術分野】本発明は、白癬菌によって皮膚や爪の間に惹起される汗疱状白癬、手足の皮膚に惹起される水疱状炎症等、所謂水虫を治療する外用皮膚真菌症治療薬に関する。

【0002】

【従来の技術】足の皮膚や爪の間に白癬菌が感染すると所謂、水虫といわれる炎症が起きる。この水虫の治療薬として従来より多数提供されている。しかし、従来の外用治療薬は、皮膚患部に毎日塗布使用しても白癬菌が角質層深くにまで存在するので、角質層が完全に再生するまで塗布しなければならず、2~3ヶ月と長期間治療に要し、特に足指の爪の間に感染すると新しい爪に生え変わるまで塗布治療するとなると一年近くも要することになり、完治させるのが非常に困難であった。

【0003】

【発明が解決しようとする課題】本発明は、上記水虫のような真菌症の治療に有用な抗真菌剤及びその製造方法の提供を目的とする。

【0004】

【課題を解決するための手段】本発明者は、所定の細菌を培養して得られた発酵液が皮膚の角質層への浸透性に優れ、水虫等の真菌症を短期間に完治させることができることを見出したものである。より具体的に説明すると、コリネバクテリウム (*Corynebacterium*) 属に属する細菌 (コリネ菌) を果糖を有する果実の果肉又は野菜をジューサー、ミキサー等の粉碎手段にて汁状にした液に投入して所定量の蔗糖 (砂糖) を添加しつつ、温度20°C~60°Cにて200時間以上、好ましくは2週間~1ヶ月間保持し発酵させる。

【0005】ここで果汁等の液は、当初細かい果肉粉等により濁っているが、発酵が進につれて透明度が増していく。このようにして得られた発酵液を外用として水虫患部に塗布すると、足の皮膚の場合には2~3日で完治

し、爪水虫の場合には約1週間~1ヶ月間で完治した。

【0006】

【発明の実施の形態】本発明の望ましい実施の形態を以下具体的に説明する。りんご、ぶどう、すいか等の果実あるいは、果糖を多く含有する人参、ごぼう等の野菜を単独又は混合して用いてミキサーで汁状にしたもの約30~40kg造り、かめ等の容器に入れる。この中に砂糖を約15kg投入してかき混ぜる。なお、砂糖を約30~40kg一度に投入してもよいが、今回は後述するように毎日追加投入した。次にコリネ菌培養された原液を約0.5kg投入し、かき混ぜる。コリネ菌の量は、発酵に寄与出来れば特に上記に限定されるものではない。上記容器を20°C~60°Cの温度にて保存すればよいが、経済性を考慮して日当たりの良い場所にこの容器を置いておいた。毎日砂糖を3~5kg合計約15~25kg追加投入し、かき混ぜた。初日は液が濁っていたが、約1週間目位から液の透明度が増して来て約2週間でコハク色の有色透明な液となった。なお、上記の例は大量にかつ、長期間保存使用を目的に比較的大きい陶磁器のかめを用いた製造例を示したが、コリネ菌を培養、発酵出来る条件であれば、上記に限定されるものではない。

【0007】上記のようにして得られた液を少量取り出して、長年水虫に悩んでいた患者の足の水虫患部に1日に1回直接塗布し、経過を観察したところ、その日のうちにかゆみ、痛みが無くなり、3日間塗布した後に放置しておいたが水虫の再発はなかった。なお、この患者の場合には、足の皮膚に小さい水疱が出来ていたので水疱を消毒針で破り、上記液を塗布した。また、足の指と指との間に発生している水虫患者の患部に同様に直接塗布したところ、やはり2~3日で完治した。

【0008】本発明に係る上記液を脱脂綿に少量しみ込ませ、長年爪水虫に悩んでいた患者の足指に当て、ゴム製の指サックをはめて置いたところ、約1週間で爪水虫が完治した。なお、足の親指全体が爪水虫になっている患者の場合には、2~3日毎に上記脱脂綿を取り替え治療したところ、約1ヶ月間で完治した。

【0009】

【発明の効果】本発明においては、果肉等から得られた果汁等にてコリネバクテリウム (*Corynebacterium*) 属に属する細菌を培養した液をそのまま皮膚患部に塗布するだけで水虫等の白癬菌を殺菌することができる。これにより、皮膚真菌症治療に非常に有効で容易に製造できる抗真菌剤が得られた。